ORDER NO. ITD0306013C1

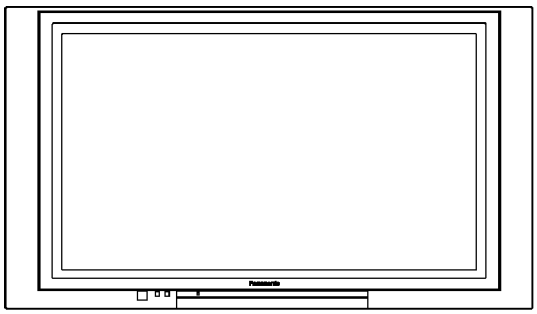
B19 Canada: B07

Service Manual

Progressive Plasma Television

TH-42PA20U-P

GP6DU Chassis



SPECIFICATIONS

Specifications

wer Source	AC 120 V, 50/60 Hz	
wer Consumption	Maximum :425 W	
	Stand-by condition :0.8 W	
ısma Display panel	Drive method :AC type 42-inch, 16 :9 aspect ratio	
reen Size	36.22 " (920 mm) (W) × 20.39 " (518 mm) (H) × 41.57 " (1056 mm) (diagonal)	
nensions	46.06 " (1170mm) " 29.91 " (658 mm) × 3.90 " (99 mm)	
× H × D)		
ıss (Weight)	77.2 lb.(35.0 kg)Net	
annel Capability-181	VHF-12 :UHF-56 :Cable-125	
und		
Speaker	Woofer Φ 1.57 " (40 mm) × 4 , Tweeter Φ 1.38 " (35mm)	
Audio Output	16 W [8 W +8 W] (10 % THD)	
Headphone	M3 (3.5 mm) Jack × 1	
ATURES	Two screen display fuctions	3D Y/C FILTER
	BBE VIVA	LINEAR PIP
	CLOSED CAPTION	V-Chip
cessories Supplied	Remote control Transmitter	EUR7603ZC0
	AA Battery × 2	Ferrite cores (large × 5, small × 5)
	AC Cord	F type Antenna Adaptor (3C-2V × 2, 5C-2V × 2)
	Pedestal	Fixing band
erating Conditions	Temperature : 34 °F - 104 °F (0° - 40°C)	
	Humidity : 20 % - 80 % (non-condensing)	

nnection Terminals	RGB input	D-SUB 15pin	R, G, B /0.7 Vp-p (75 Ω) HD, VD /1.0 -5.0 Vp-p (high impedance)
	AV INPUT 1-3	VIDEO (Phono Jack Type)	1.0 Vp-p (75 Ω)
		S-VIDEO (Mini DIN 4-pin)	Y :1.0 Vp-p (75 Ω), C : 0.286 Vp (75 Ω)
		AUDIO L-R (Phono Jack Type × 2)	0.5 Vrms
	AV PROG.OUT	VIDEO (Phono Jack Type)	1.0 Vp-p (75 Ω)
		AUDIO L-R (Phono Jack Type × 2)	0.5 Vrms
	TO AUDIO AMP	AUDIO L-R (Phono Jack Type × 2)	0.5 Vrms
	COMPONENT VIDEO	Y	1.0 Vp-p (including synchroniza
	INPUT1-2	PB /PR	± 0.35 Vp-p
		AUDIO L-R (Phono Jack Type × 2)	0.5 Vrms
	DIGITAL IN INPUT	DVI 1.0	24 pin
		AUDIO L-R (Phono Jack Type × 2)	0.5 Vrms

ote:
esign and Specifications are subject to change without notice.Weight and Dimensions shown are pproximate.

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

1. Applicable signals

VIDEO input

	signal name	horizontal frequency(kHz)	vertical frequency(Hz)
1	NTSC	15.73	59.94

Applicable input signals (∗ mark)

	signal name	horizontal frequency(kHz)	vertical frequency(Hz)	COMPONENT	PC	DVI
1	525 (480) /60i	15.73	59.94	∗	∗	
2	525 (480) /60p	31.47	59.94	∗	∗	∗
3	1,125 (1,080) /60i	33.75	59.94	∗	∗	∗
4	640 × 400 @70	31.47	70.00		∗	
5	640 × 480 @60	31.47	59.94		∗	
6	Macintosh13" (640 × 480)	35.00	66.67		∗	
7	640 × 480 @75	37.50	75.00		∗	
8	852 × 480 @60	31.50	60.00		∗	
9	800 × 600 @60	37.88	60.32		∗	
10	800 × 600 @75	46.88	75.00		∗	
11	800 × 600 @85	53.67	85.06		∗	
12	Macintosh16" (832 × 624)	49.73	74.55		∗	
13	1,024 × 768 @60	48.36	60.00		∗	
14	1,024 × 768 @70	56.48	70.07		∗	
15	1,024 × 768 @75	60.02	75.03		∗	
16	1,024 × 768 @85	68.68	85.00		∗	
17	Macintosh21" (1,152 × 870)	68.68	75.06		∗	
18	1,280 × 1,024 @60	63.98	60.02		∗	
19	1,280 × 1,024 @75	79.98	75.03		∗	
20	1,280 × 1,024 @85	91.15	85.02		∗	
21	1,600 × 1,200 @60	75.00	60.00		∗	

Note: Signals without above specification may not be displayed properly.

2. Safety Precautions

2.1. General Guidelines

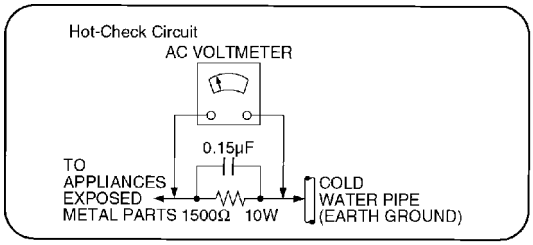
1. **When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.**
2. **After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.**
3. **After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.**

2.1.1. Leakage Current Cold Check

1. **Unplug the AC cord and connect a jumper between the two prongs on the plug.**
2. **Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to thechassis, the reading should be between 1M Ω and 5.2M Ω . / When the**

exposed metal does not have a return path to the chassis, the reading must be∞.

Figure 1



2.1.2. Leakage Current Hot Check (See Figure 1 .)

1. **Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.**
2. **Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15μF capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1 .**
3. **Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.**
4. **Check each exposed metallic part, and measure the voltage at each point.**
5. **Reverse the AC plug in the AC outlet and repeat each of the above measurements.**
6. **The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outsideof the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.**

3. Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistorsand semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. **Immediately before handling any semiconductor component or**

semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, whichshould be removed for potential shock reasons prior to applying power to the unit under test.

2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**
3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**
4. **Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.**
5. **Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**
6. **Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, alminum foil or comparableconductive material).**
7. **Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.**

   Caution

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. **Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise hamless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient todamage an ES device).**

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are imporant for safety.
These parts are marked by ⚠ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

4. About lead free solder (PbF)

Note: Lead is listed as (Pb) in the periodic table of elements.
In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.
The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).
That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.
This model uses Pb Free solder in it's manufacture due to environmental conservation issues.
For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.
PCBs manufactured using lead free solder will have the PbF within a leaf Symbol

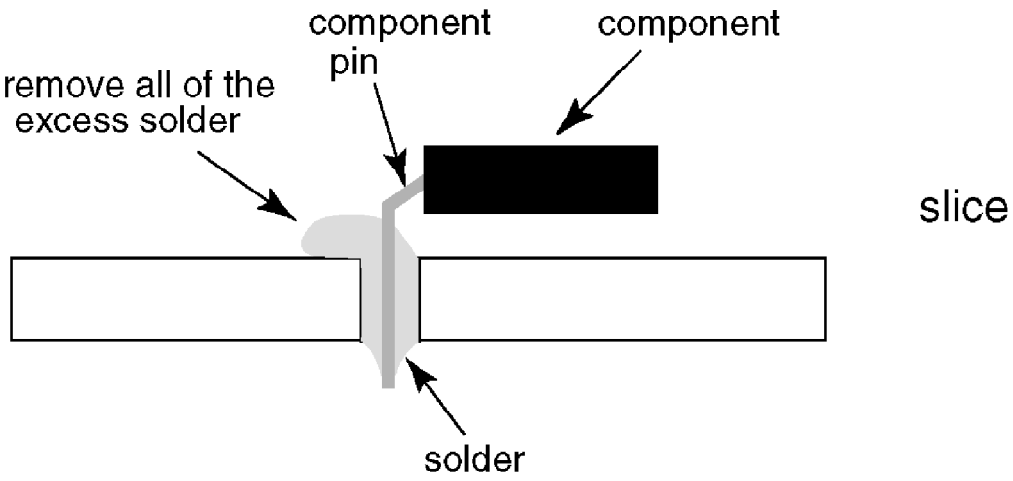
stamped on the back of PCB.

Caution

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30~40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).

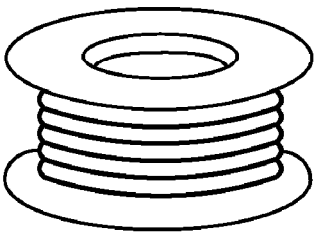
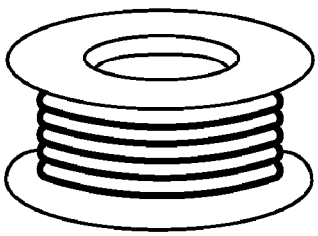
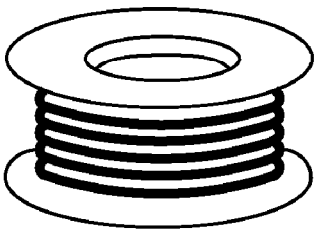
- Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C).
If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.

- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)

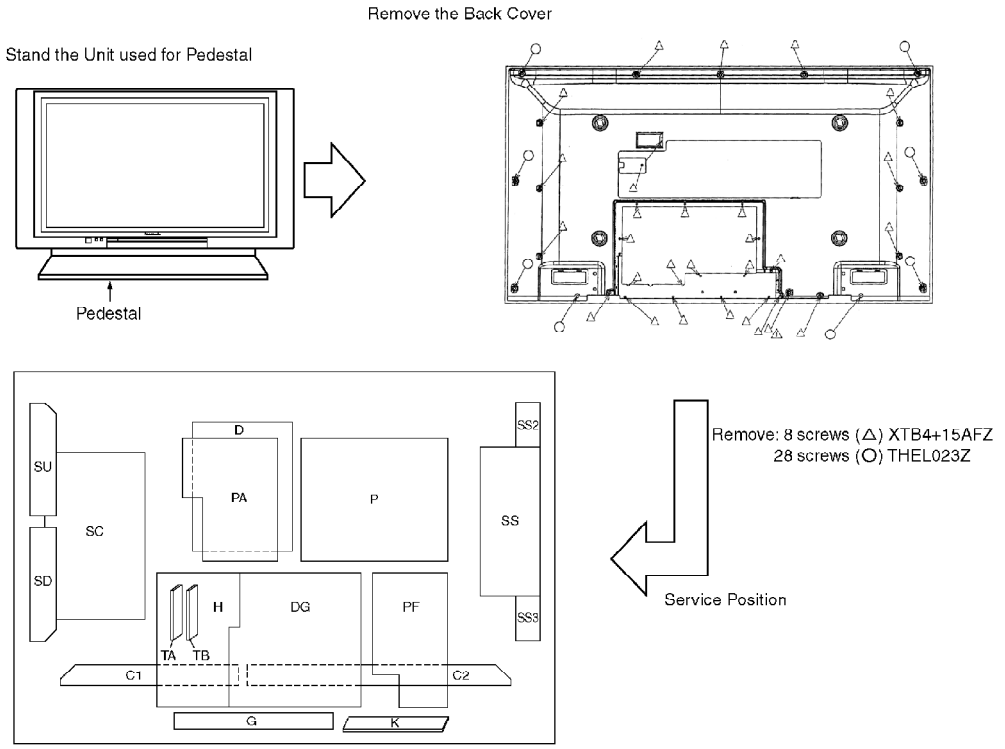


Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also beused.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

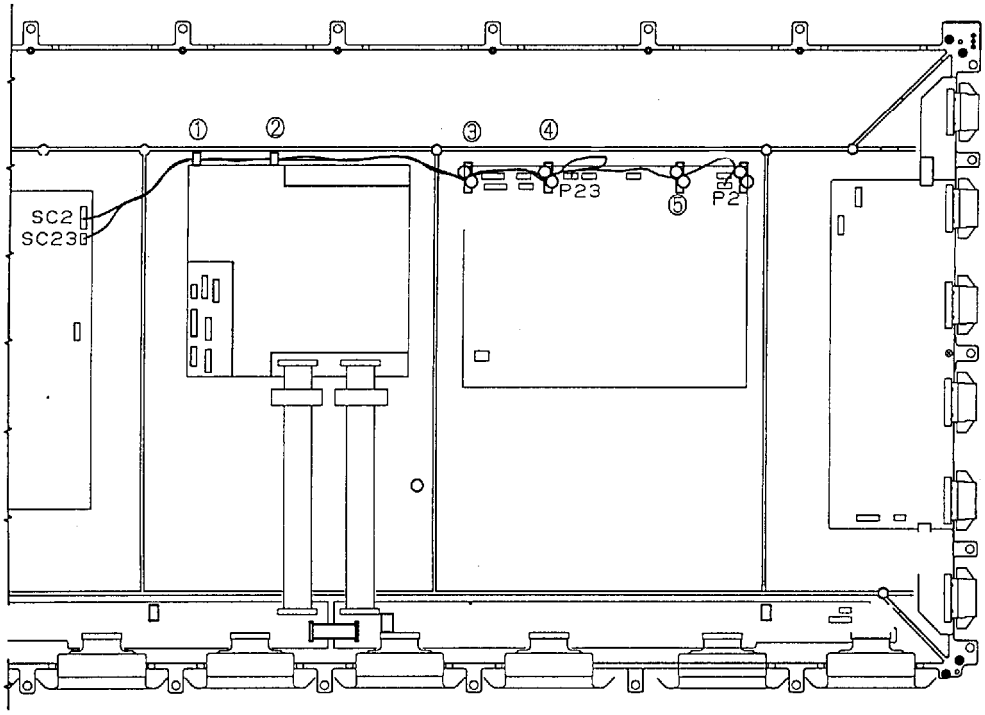
5. Service Hint



Board Name	Function	Board Name	Function
C1	DATA DRIVER (RIGHT)	PF	LINE FILTER
C2	DATA DRIVER (LEFT)	SC	SCAN DRIVE
D	DIGTAL SIGINAL PROCESS	SD	SCAN OUT (DOWN)
DG	DIGTAL CORE MICOM	SS	SUSTAIN DRIVE
G	FRONT TERMINAL, SWITCH	SS2	SUSTAIN CONNECTION (UP)
H	REAE TERMINAL	SS3	SUSTAIN CONNECTION (DOWN)
K	LED, REMOTE, POWER SWITCH	SU	SCAN OUT (UP)
P	POWER SUPPLY	TA	MAIN TUNER
PA	DC/DC, AUDIO	TB	SUB TUNER

6. Location of Lead Wiring

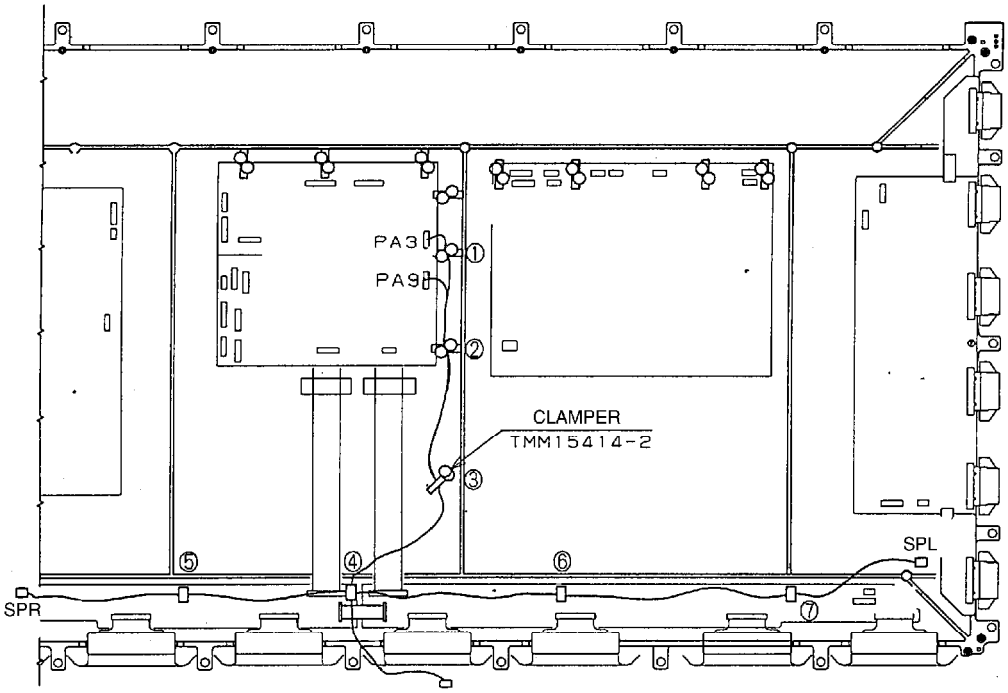
6.1. Lead of Wiring (1)



CON:NO. — CON:NO.	①	②	③	④	⑤	⑥
SC2 — P2	○	○	○	○	○	
SC23 — P23	○	○	○	○		
—						

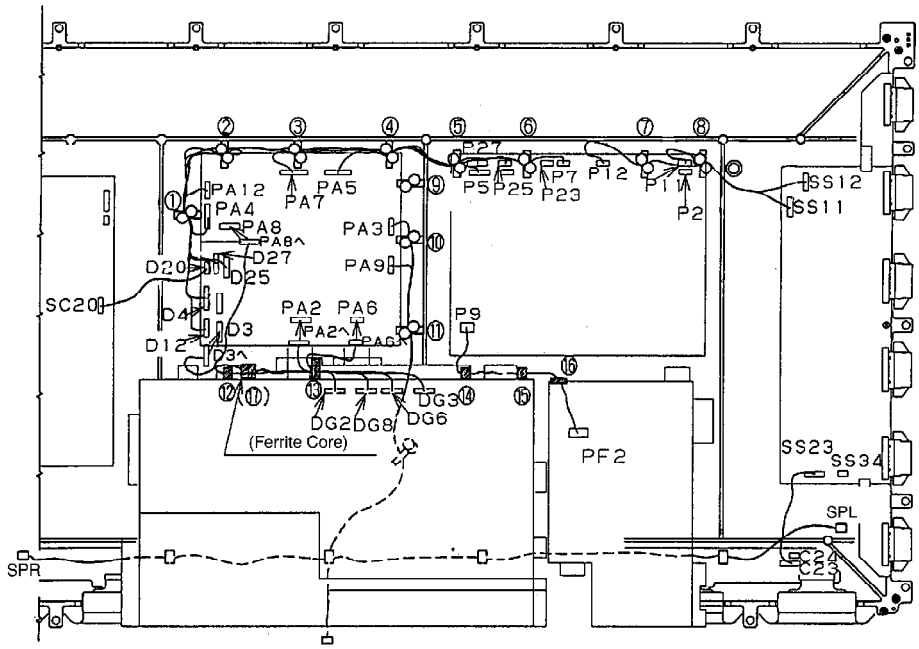
Connector Connection
P2、P23

6.2. Lead of Wiring (2)



CON:NO. — CON:NO.	①	②	③	④	⑤	⑥	⑦		
PA3 — SPR	○	○	○	○	○				
PA3 — SPL	○	○	○	○		○	○		
PA9 — K9		○	○	○					

6.3. Lead of Wiring (3)

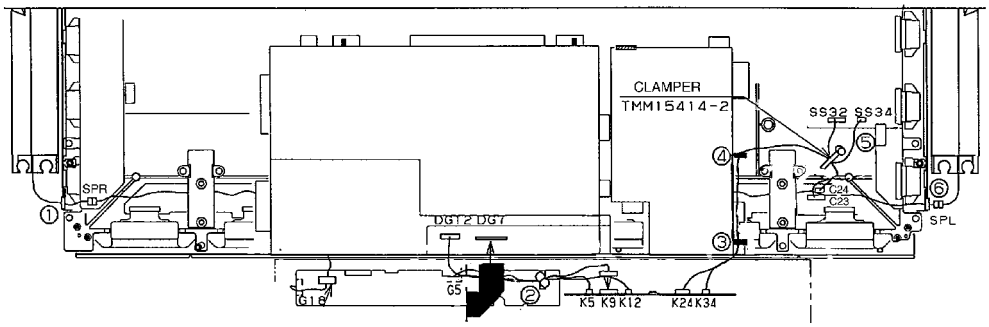


CON:NO. — CON:NO.	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰
SC20 — D20																	
D12 — PA12	○																
D4 — PA4	●	●															
D25 — P25	○	○	○	○	○												
D27 — P27	○	○	○	○	○												
PA5 — P5				○	○												
SS11 — P11								○									
SS12 — P12							○	○									
PA7 — P7			○	○	○	○											
PF2 — P9														○	○		○
DG8 — PA8												○	○				
SS23 — C23																	
DG2 — PA2														○			
DG6 — PA6														○			
DG3 — D3														○			○

Connector Connection
P2, P5, P11, P12, P23, P25
P27, P7, D20, D12, D4
D25, D27, D3
PA8, PA2, PA6, PA7, C23

● Wind up second times

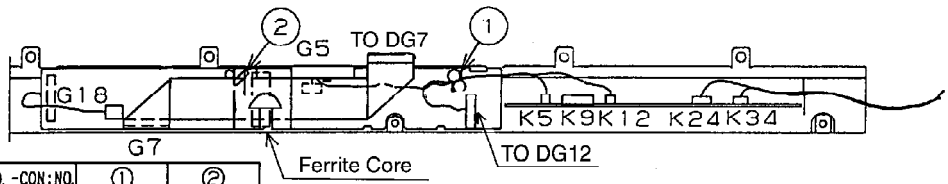
6.4. Lead of Wiring (4)



SS34, C24, SP (L, R)
DG12, DG7, G18, K9

CON:NO. - CON:NO.	①	②	③	④	⑤	⑥	○	○
PA9 - [K9]		○						
K12 - [DG12]		○						
K24 - [C24]			○	○	○			
K34 - [SS34]			○	○	○			
SS23 - [C23]					○			
PA3 - [SPR]	○							
PA3 - [SPL]					○	○		
G5 - K5		○						

6.5. Lead of Wiring (5)



CON:NO. -CON:NO.	①	②
K5-G5	○	
K12-DG12	○	
G7-DG7		○

Connector Connect
K5, K24, K34
G7, G18

7. Self-check Function

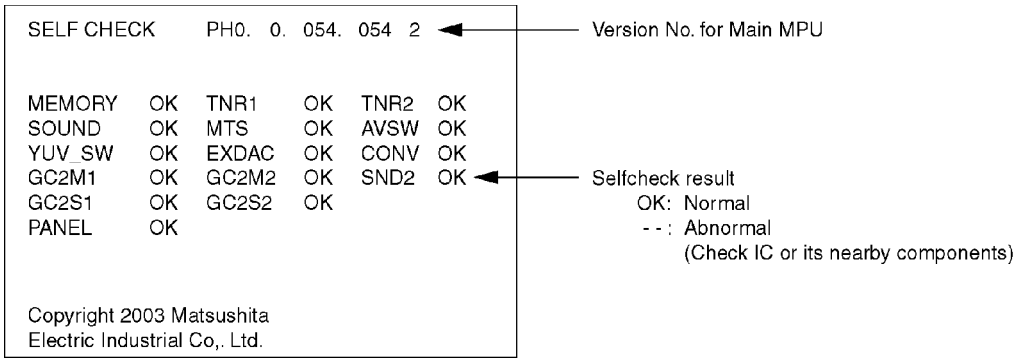
When symptoms like “the power fails sometimes” or “sometimes there is no picture and/or sound” can not be confirmed at the time of servicing, the self-check function can be used to confirm the occurrenceand to find the defective circuit.
In case of “power failure”, flashing of the “POWER” indication (red) at the front of the unit can be used to narrow down the +B line.

7.1. Self-check of the microcomputer control system (bus line)

Indicaton method
Press the “ACTION” button in the control panel of the unit simultaneously with the “POWER” button in the control panel of the unit. Hold them few seconds.

Return to he normal screen
Press any button on the unit or in the remote control.

Screen Display


SELF CHECK PH0. 0. 054. 054 2
Version No. for Main MPU
MEMORY OK TNR1 OK TNR2 OK
SOUND OK MTS OK AVSW OK
YUV_SW OK EXDAC OK CONV OK
GC2M1 OK GC2M2 OK SND2 OK
GC2S1 OK GC2S2 OK
PANEL OK
Selfcheck result
OK: Normal
- - : Abnormal
(Check IC or its nearby components)
Copyright 2003 Matsushita
Electric Industrial Co,. Ltd.

Display	Ref. No.	Description	Board
MEMORY	IC002	EEPROM for Main MPU	DG
SOUND	IC2401	Sound Control	H
YUV_SW	IC4301	YUV switch	H
GC2M1	IC4501	Global Core 2 for main	DG
GC2S1	IC4502	Global Core 2 for sub	DG
PANEL	- - - - -	Panel	- - - - -
TNR1	TNR201	Tuner 1	TA
MTS	IC4205	Multiplex sound	H
EXDAC	IC8031	External I/O	
GC2M2	IC4501	Global Core 2 for main	DG
GC2S2	IC4502	Global Core 2 for sub	DG
TNR2	TNR251	Tuner 2	TB
AVSW	IC4302	AV switch	H
CONV	IC3801	Convert Micom	DG
SND2	IC4203	BBE	H

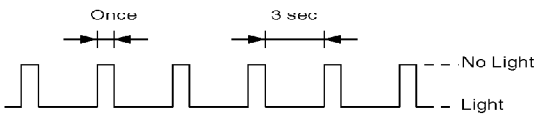
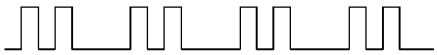
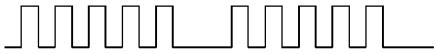
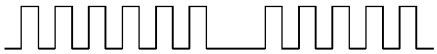
7.2. Power LED Blinking timing chart

1. Subject

Information of LED Flashing timing chart.

2. Contents

When an abnormality has occurred the unit, the protection circuit operates and reset to the stand by mode. At this time, the defective block can be identified by the number of blinkes of the Power LED on the front panel of the unit.

Blinking times	Blinking timing	Contents & Check point
1		Main Micom Power
2		SCAN Driver1
3		3.3V SOS
4		5V SOS
5		Power SOS
6		FAN
7		SCAN Driver2
9		SUS Driver
12		PA board Base Voltage (15, 12, 9, 5, 2.5V)

3. Remarks

Above Fan function is operated during the fans are installed.

7.3. No Power

[First check point]

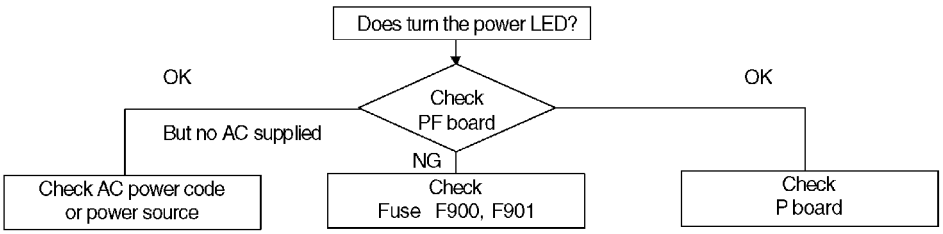
There are following 3 states of No Power indication by power LED.

1. No lit

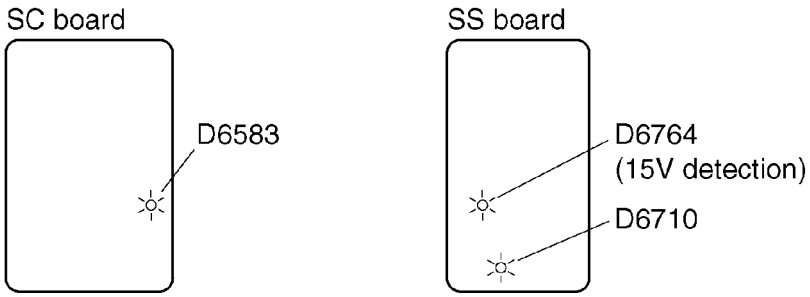
2. Green is lit then turns red blinking a few seconds later.

3. Only red is lit.

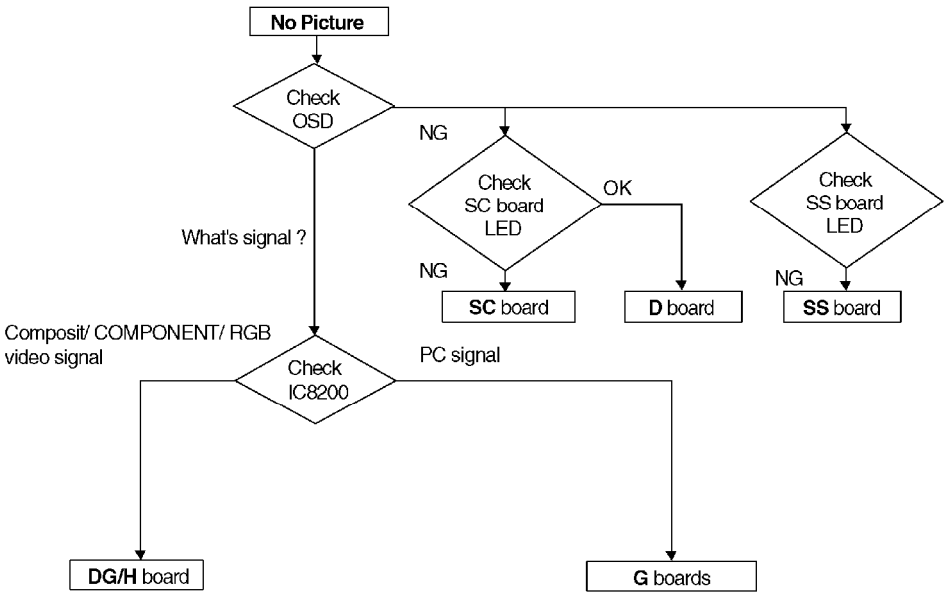
1. No lit



Drive circuits LED indicator



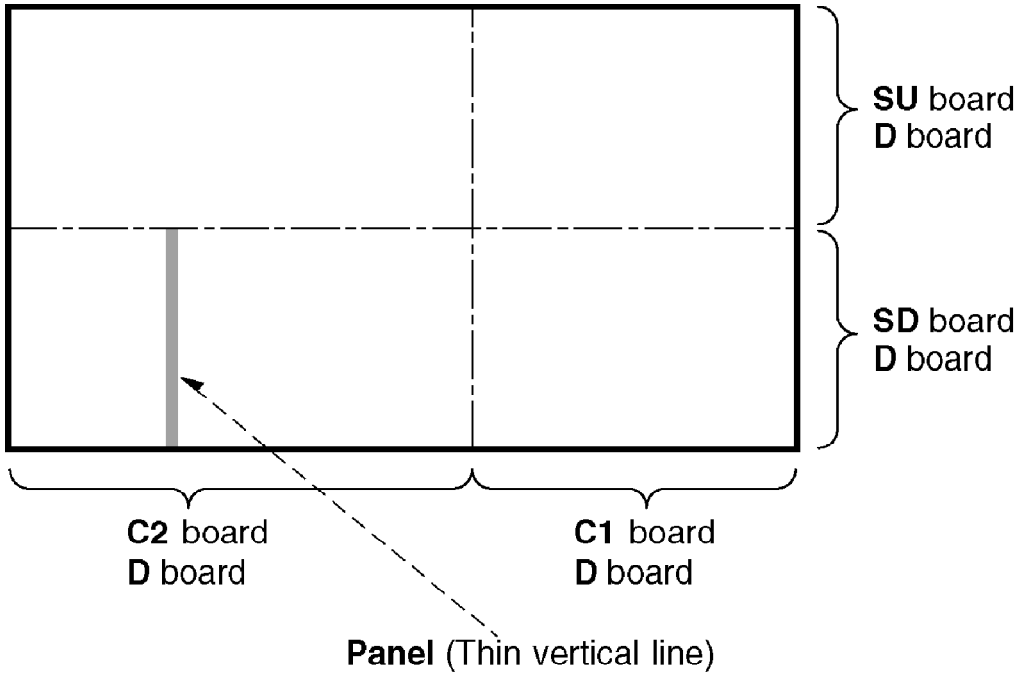
7.4. No Picture



7.5. Local screen failure

Plasma display may have local area failure on the screen. Fig - 1 is the possible defect P.C.B. for each local area.

Fig - 1



<Local screen failure chart>

8. Serviceman Mode (Electronic Controls)

This Receiver has electronic technology using the I2 C BUS Concept. It performs as a control function and it replaces many mechanical controls. Instead of adjusting mechanical controls individually, many of the control function are now performedby using "On Screen Display Menu". (The Serviceman Adjustment Mode .)

Note
It is suggested that the technician reads all the way through and understand the following the procedure for Entering/Exiting the Serviceman Mode ; then proceed with the instructions working the Receiver. When becoming familiarwith the procedure, the Flow Chart for Serviceman Mode may be used as a quick guide.

Quick Entry to Serviceman Mode:
At times when minor adjustments need to be done to the electronic controls, the method of Entering the serviceman Mode without removal of the cabinet back is as follows using the Remote Control:

1. Select SET-UP icon and select CABLE mode.

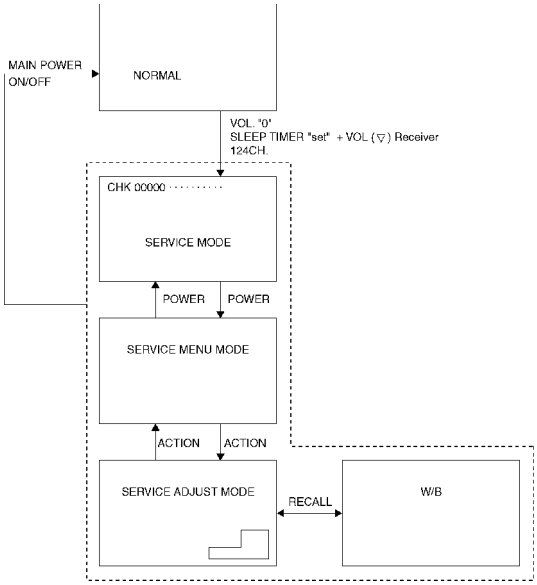
2. Select TIMER icon and set SLEEP time for 30 Min.

3. Press ACTION button twice to exit menus.

4. Tune to the Channel 124.

5. Adjust VOLUME to minimum (0).

6. Press the VOL ◀ button (decrease) on Receiver . Red “CHK” appears in upper corner.



To toggle between Aging and Serviceman modes:

While the “CHK” is displayed on the left top corner of the screen, pressing the Action and the Volume up button on the Receiver simultaneously will toggle between the modes. Red “CHK” for Serviceman and yellow “CHK” forAging.

7. Press the Power Button on the Remote Control to select one of six Serviceman Adjustment Modes.

A. Serviceman MTS ADJUSTMENT.
B. Serviceman CLOCK ADJUSTMENT.
C. Serviceman VIDEO ADJUSTMENT.
D. Serviceman HDEF ADJUSTMENT.
E. Serviceman VDEF ADJUSTMENT.
F. Serviceman DAF ADJUSTMENT.
G. Serviceman OTHER ADJUSTMENT.

Note: *Only the applicable settings for the Receiver serviced will be available (See a in Fig.1).*

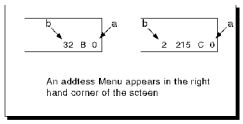


Figure 1. **Serviceman Mode Menu Adjustments.**

Exiting the Serviceman Mode:
Press the Power buttons on the Receiver.

For Adjustments:

1. Press Channel Up/Down on the Remote Control to select one of the available Service Adjustments (a in Fig.1).

Note:
Write Down the original value set (b in Fig.1) for each address before modifying anything. It is easy to erroneously adjust the wrong item.

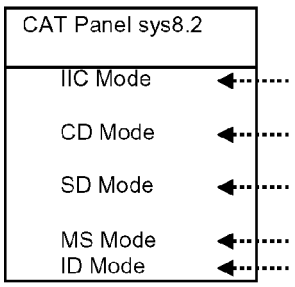
2. Press Volume Up/Down on the Remote Control to adjust the level of the selected Service Adjustment (b in Fig.1).

MAIN ITEM	SUB ITEM	ORIGINAL VALUE	EEPROM ADRESS		DEFAULT LEVEL
			SLEEVE	SUB	
MTS	MTSIN	10	3A		21
	SEPA L	10	3B		06
	SEPA H	10	3C		19
CLOCK	CLOCK	10	3D		128
VIDEO	COLOR	14	F2		19
	TINT	14	F6		88
	BRIGH	14	D4	01	FA
	CONT	14	D7		25
	B-Y_G	14	E0		3F
	CUT_G	15	0C	01	6C
	CUT_R	15	01	01	99
	CUT_B	15	13	01	A4
	BRT	14	D0		FB
	R DR	14	FB		9F
	B DR	15	00		A8
H	H POS	15	1C		CE
	H WID	15	1B		2B
	HP OF	15	61		FC
	HW OF	15	60		00
V	V POS	15	1E		0C
	V WID	15		[]	D1
	VP OF	15			20
	VW OF	15			29
OTHER	VMM_G	11	15		A0
	VMM_P	11	18		F3
	HHS	11	19		CB
	EW_SW	12	7B		00

MAIN ITEM	SUB ITEM	ORIGINAL VALUE	EEPROM ADRESS		DEFAULT LEVEL
			SLEEVE	SUB	
	VTOP	12	59		86
	SOSSW	01	97		01
	POFWT	15	89		0A
	PSRVS				
	SPDYN	15	86		-00
EEP	AREA	15	9C		ALL
	IN▶EX	15	9D		
	EX▶IN	15	9E		

9. CAT (computer Aided Test) mode

CAT mode menu



Mode	Function	Access button
IIC	Service Alignment	Action
CD(Complete Diagnostics)	Software version information EEPROM edit	Mute more than 5 seconds
SD(Status Display)	MTBF parameter	Action
MS Mode	Not use	-----
ID	Not use	-----

How to access the CAT mode.

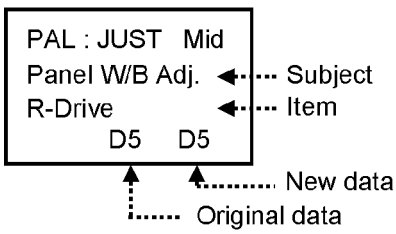
1. Enter the serviceman mode.
2. Select the OTHER (PSRVS).
3. Press the Action button on the remote control.

To exit the CAT mode , access the ID mode and switch off the main power.

9.1. IIC mode

Select the IIC mode by Up/Down button on the remote control at the front page of CAT mode then press the Action button on the remote control.

OSD



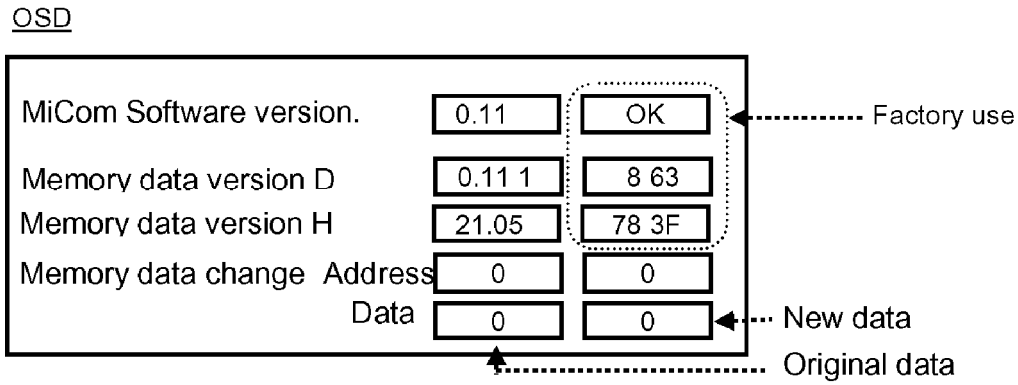
How to use the IIC mode.

1. Select the alignment **Subject** by **Up/Down buttons** on the remote control.
2 .Select the alignment **Item** by **Left/Right buttons** on the remote control.
3. Adjust **optimum setting** by **Volume Up/Down buttons** on the remote control.
4. The **data is memorized** when press the **R button** on the remote control or change the alignment Subject (or Items).

“IIC mode structure”.
To exit the IIC mode, press the RECALL button on the remote control.

9.2. CD mode

Select the CD mode by Up/Down button on the remote control at the front page of CAT mode then press the Mute button on the remote control more than 5 sec.

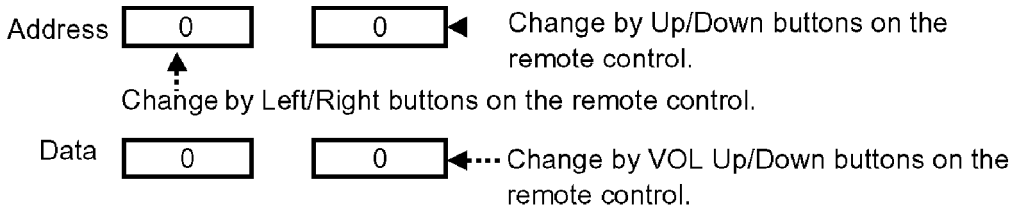


Micom software version (IC9354), this version can be upgrade by

1. replace of new version IC

2. Loading the new version software from loader tool, TZSC07036.

Memory data change

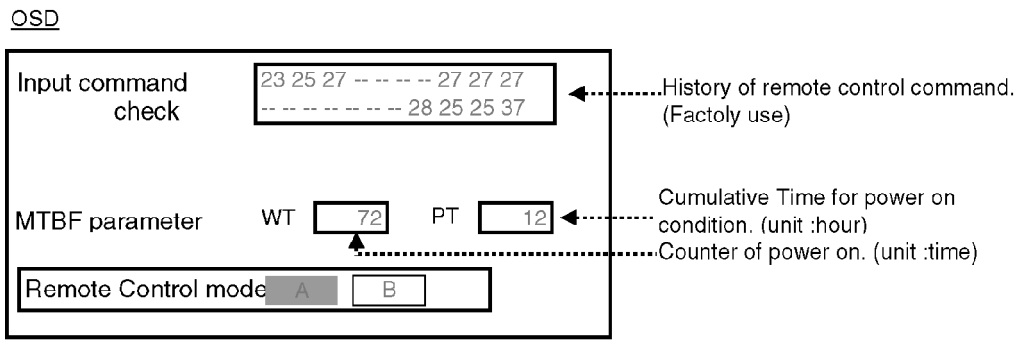


The data is memorized when switch off the main power.

To exit the CD mode, press the RECALL button on the remote control.

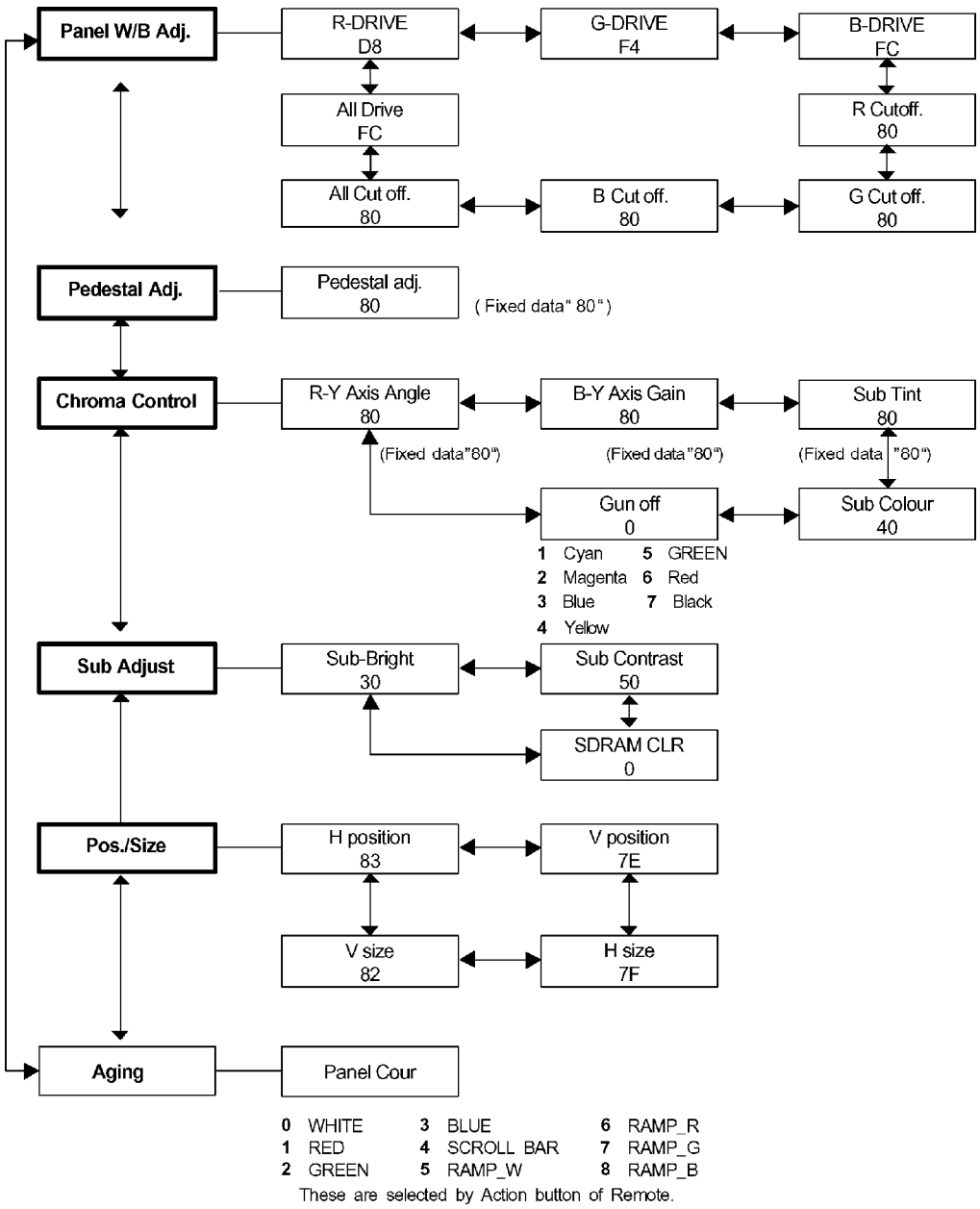
9.3. SD mode

Select the SD mode by Up/Down button on the remote control at the front page of CAT mode then press the Action button on the remote control.



To exit the SD mode, press the RECALL button on the remote control.

9.4. IIC mode structure (following items value is sample data.)



10. Adjustment Procedure

10.1. +B Set-up

10.1.1. Item / Preparation

1. Input a Grey scale signal.

2. Set the picture controls: -
Picture mode: Normal
White balance: Normal

10.1.2. Adjustment / Confirmation

Adjust and confirm indicated test point for the specified voltage.

Adjust

Name	Volume	Voltage	Test Point	Remarks
Vsus	R605	170V ± 1V	P11 pin 2	
Vda	R590	67V ± 0.5V	P12 pin 1	

Confirm

Name	Voltage	Test Point	Remarks
15V	15.4V ± 0.5V	P23 pin 1	
15V	15.2V ± 0.5V	P7 pin 1	
12V	11.8V ± 0.5V	P25 pin 1	
Audio 12V	12.5V ± 0.8V	P5 pin 7	
5V	5.1V ± 0.3V	P25 pin 5	
STB 5V	5.0V ± 0.3V	P27 pin 4	
Fan 15V	15.4V ± 0.5V	P10 pin 1	
Fan 5V	5.1V ± 0.3V	P10 pin 4	
PFC	380V ± 15V	C468(+), C468(-)	

10.2. Driver Set-up

10.2.1. Item / Preparation

1. Input an APL 100 % white signal.
2. Set the picture controls: -
   Picture mode: Normal
   White balance: Cool
   Aspect: 16:9

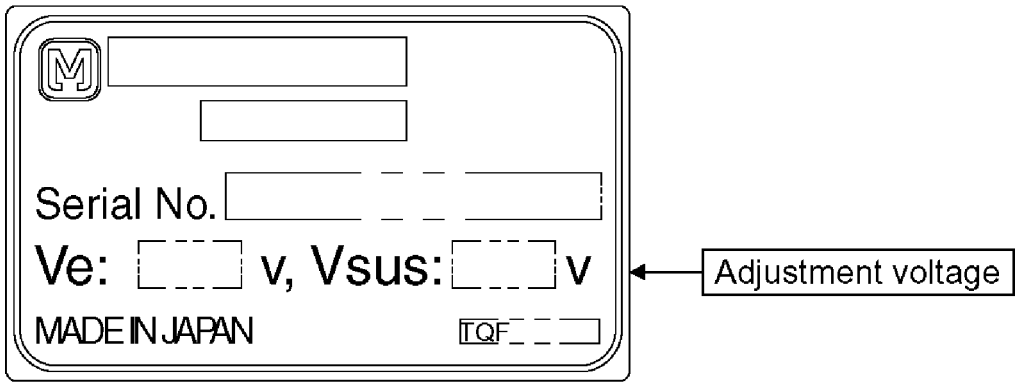
10.2.2. Adjustments

Adjust driver section voltages referring the panel data on the panel data label.

Name	Test Point	Voltage	Volume	Remarks
Vsus	TPVSUS (SS)	170V ± 1V	R605 (P)	
Vbk	TPVBK (SC)	155V ± 5V	R6443 (SC)	
Ve	TPVE (SS)	158V ± 1V	R6774 (SS)	
Vset	TPVSET (SC)	218V ± 6V	---	
Vad	TPVAD (SC)	-90V ± 1V	R6477 (SC)	
Vscn	TPVSCN (SC)	Vad*+118V ± 2V	---	
Vda	TPVDA (SS)	67V ± 1V	R590 (P)	

***See the Panel label.**

Panel Label information



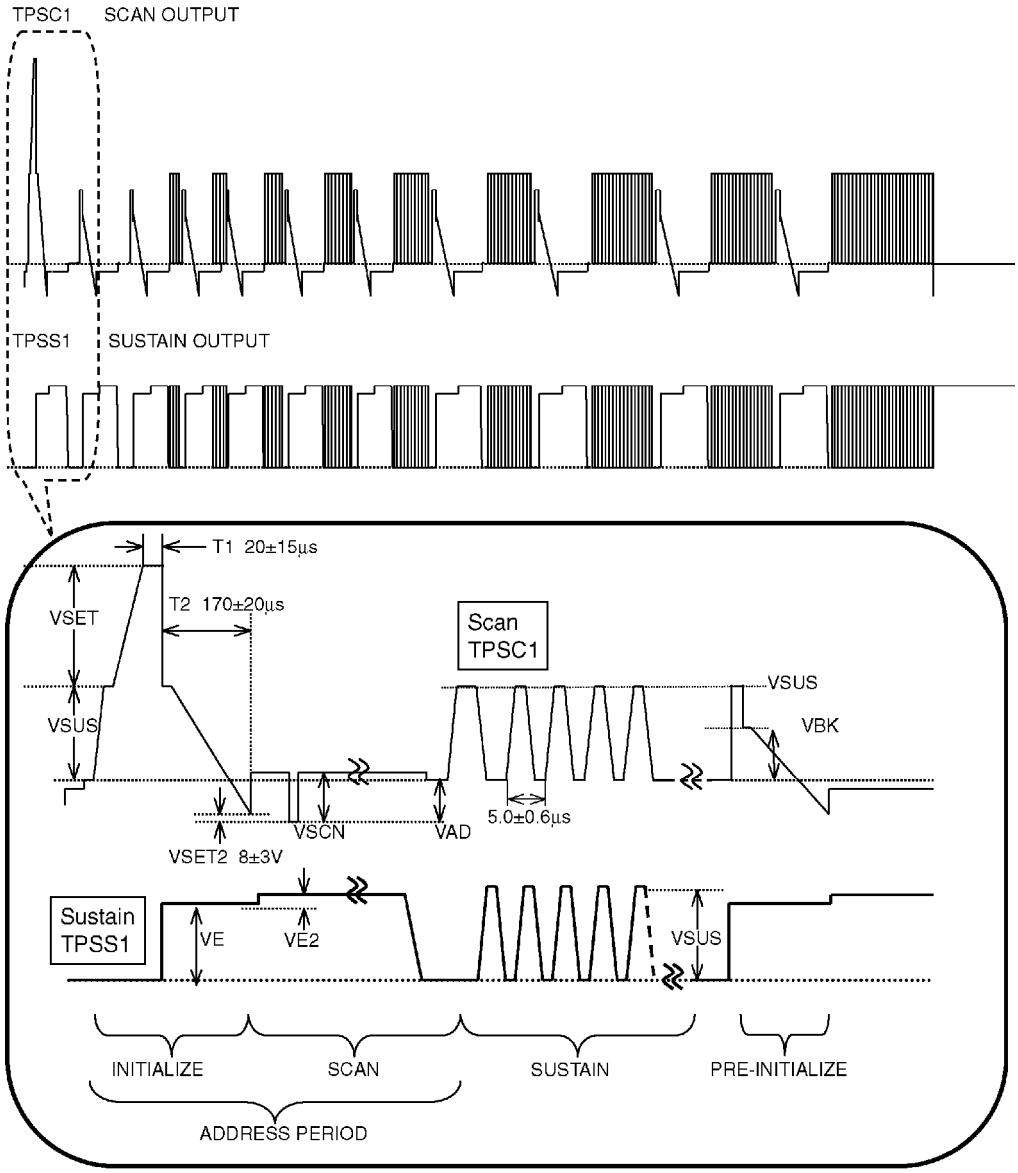
10.3. Initialization Pulse Adjust

1. Input a Cross hatch signal.

2. Set the picture controls: -
Picture mode: Normal
White balance: Cool

Adjust the indicated test point for the specified wave form.

	Test point	Volume	Level
T1	TPSC1 (SC)	R6523 (SC)	20 ± 15 μ Sec
T2	TPSS1 (SS)	R6557 (SC)	170 ± 20 μ Sec



10.4. P.C.B. (Printed Circuit Board) exchange

10.4.1. Caution

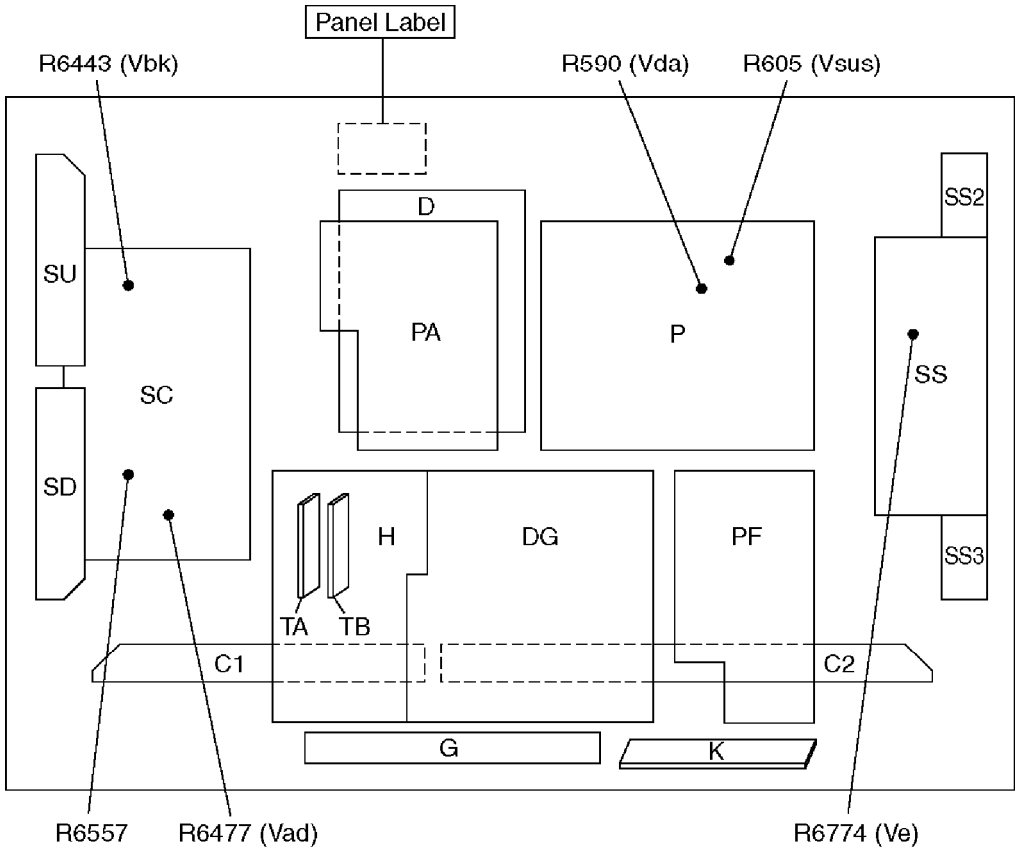
1. To remove P.C.B. , wait 1 minute after power was off for discharge from electrolysis capacitors.

10.4.2. Quick adjustment after P.C.B. exchange

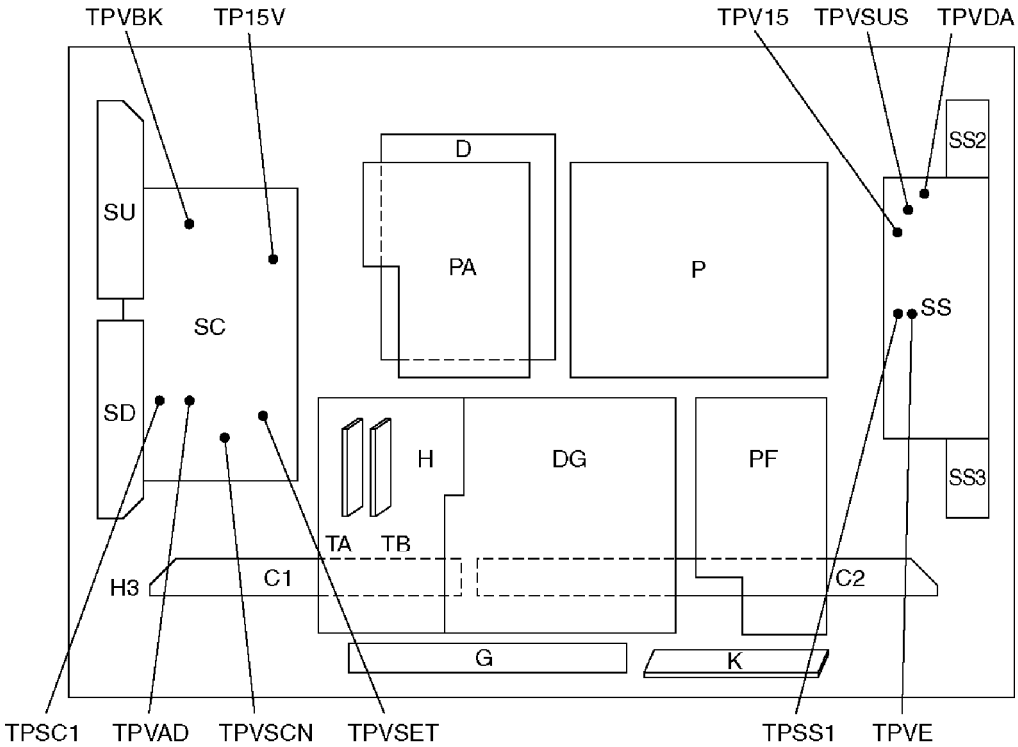
P.C.B.	Name	Test Point	Voltage	Volume	Remarks
P Board	Vsus	TPVSUS (SS)	170V ± 1V	R605 (P)	
	Vda	TPVDA (SS)	67V ± 1V	R590 (P)	
SC Board	Vbk	TPVBK (SC)	155V ± 5V	R6443 (SC)	
	Vad	TPVAD (SC)	-90V ± 1V	R6477 (SC)	
	Vset	TPVSET (SC)	218V ± 6V	---	
	Vscn	TPVSCN (SC)	Vad + 118 ± 2V	---	
SS Board	Ve	TPVE (SS)	158V ± 1V	R6774 (SS)	
D, DG Board	White blance, Pedestal and Sub brightness for NTSC, PAL, HD, PC and 625i signal				

***See the Panel label.**

10.5. Adjustment Volume Location



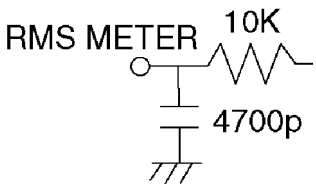
10.6. Test Point Location



11. Adjustment

11.1. MTS Adjustment

11.1.1. Input level Adjustment

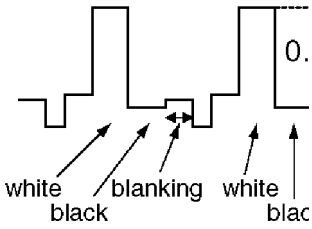
Instrument name	Connection	Remarks
1. Filter jig 2. 2 RF signal generator 3. RMS voltage meter 4. Measurement computer	**TP215 (L out)** **RF ANT. INPUT** **Filter jig** **SCL2, SDA2, FA2**	
Procedure		**Remarks**
1. Apply following RF signal at Antenna input. **VIDEO : Flat field , 30% modulation** **AUDIO : 300Hz ,100% modulation ,monaural** **(70dB ± 5dB, 75 Ω OPEN, P/S 10dB)** **Note:** **Make sure 75us PRE-EMPHASIS is off.** **2. Adjust "MTSIN" data (Input level) until the RMS voltage meter indicates 106mVrms ± 6mVrms.**		

11.1.2. STERO Sep. Adjustment

Instrument name	Connection	Remarks
1. RF signal generator 2. Oscilloscope 3. Measurement computer	RF ANT. INPUT TP216-GND SCL2, SDA2, FA2	

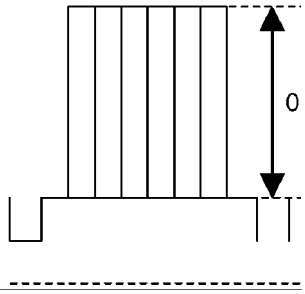
Procedure	Remarks
1. Select STEREO mode in the AUDIO Menu. 2. Apply following RF signal at Antenna input. VIDEO : Flat field , 30% modulation AUDIO : 300Hz ,30% modulation ,STEREO (LEFT only) (70dB ± 5dB ,75 Ω OPEN ,P/S 10dB) **Note:** **After setting 30% modulation with P.L. SW and N.R. SW off, turn P.L. SW and N.R. SW on.** 3. Adjust "SEPAL" data (Low-level separation) until the amplitude. 4. Apply following RF signal at Antenna input. VIDEO : Flat field , 30% modulation AUDIO : 3kHz ,30% modulation ,STEREO (LEFT only) (70dB ± 5dB, 75 Ω OPEN, P/S 10dB) **Note:** **After setting 30% modulation with P.L. SW and N.R. SW off, turn P.L. SW and N.R. SW on.** 5. Adjust "SEPAH" data (High-level separation) until the amplitude of the waveform on the oscilloscope is minimum. 6. Repeat steps 2. to 5. until Low-level separation and High-level separation satisfy above-mentioned conditions.	The separation mustbe m 20 dB at 300Hz and 3kHz.

11.2. Sub contrast Adjustment (NTSC)

Preparation		
Picture mode : VIVID (NORMAL SET) **Adjustment data : BRIGH, CONT** ACL OFF WHITE CHARACTER CORRECTION OFF COLOR OFF VPK (V contour) OFF DSC OFF AI OFF (NOTE) Don't operation ABL circuit when adjust sul		
Instrument name	**Connection**	**Remarks**
1. Oscilloscope **2. Adjustment check RACK** **3. Measurement computer**	**G out**	
Procedure		**Remarks**
1. Apply a studio color bar. (Other method) **2. Adjust "CONT" data to obtain 0.7 ± 0.02 V between black and 1white.**		< studio color bar > 

11.3. Sub contrast Adjustment (HDTV)

Preparation		
Picture mode : VIVID (NORMAL SET) **Adjustment data : BRIGH, CONT** ACL OFF WHITE CHARACTER CORRECTION OFF COLOR OFF VPK (V contour) OFF DSC OFF AI OFF (NOTE) Don't operation ABL circuit when adjust sul		
Instrument name	**Connection**	**Remarks**
1. Oscilloscope **2. Adjustment check RACK** **3. Measurement computer**	**G out**	
Procedure		**Remarks**

1. Apply a HD crosshatch pattern. 2. Adjust "CONT" data to obtain 0.7 ± 0.02 V between black and white.	< HD crosshatch patte 

11.4. Pedestal setting

11.5. NTSC panel white balance

11.6. HD panel white balance

11.7. Sub brightness setting

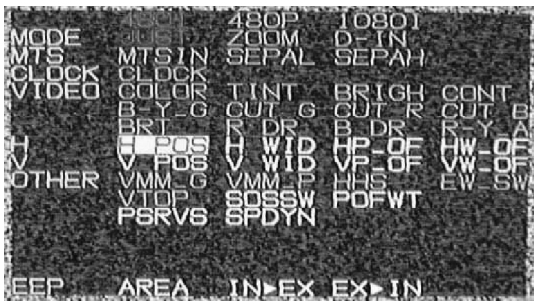
12. Hotel mode

1. Purpose

Restrict a function for hotels.

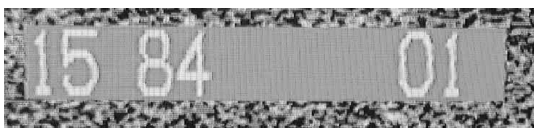
2. Access command

- Enter to the Service Mode.


480P 1080I
MODE ZOOM D-IN
MTS MTSIN SEPAL SEPAH
CLOCK CLOCK
VIDEO COLOR TINT BRIGH CONT
B-Y_G CUT_G CUT_R CUT_B
BRI R_DR B_DR R-Y_A
H H POS H WID HP_OF HW_OF
V V POS V WID VP_OF VW_OF
OTHER VMM_G VMM_P HHS EW_SW
VTOP SOSSW POFWT
PSRVS SPDYN
EEP AREA IN▸EX EX▸IN

- Press MUTE button on remote control. Hold few seconds.

- Set the data of EEPROM(ADDRESS 1584) to 01.



Push the Power switch(button) off/on the set(the remote control) to turn the set off/on.

It can be made Hotel mode.

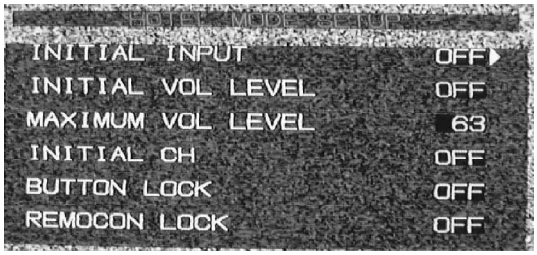
3. Exit command

- First, set the data of EEPROM (ADDRESS 1584) to 00.

Next, Push the Power switch(button) off/on the set(the remote control) to turn the set off/on.
Then, it is no longer hotel mode.

4. Access command to the Hotel mode setup menu

- <Prerequisite> : It is conditions that the data of EEPROM(ADDRESS 1584) is 01.
In order to display the Hotel mode setup menu, please enter the following command (within 2 second).
[[TV] : down + [REMOTE] : TV/VIDEO (3 times)]
Then, the Hotel mode setup menu is displayed.



5. Explain the Hotel mode setup menu

CAUTION

This setup is not valid, unless data of EEPROM (ADDRESS 1584) will be 01, even if each settings were done.

item	Function
INITIAL INPUT	**Select input signal modes.** **Set this signal, each time power is switched on.** **<Selection> :** **Off/TV/COMP1/COMP2/DIGITAL/ VIDEO1/VIDEO2/VIDEO3/PC/JPEG** **-Off: give priority to a last memory.** **-PC: selectable with VGA option**
INITIAL VOL LEVEL	**Adjust output Volume.** **Set this volume, each time power is switched on.** **If the value of InitVol is changed, volume will change. However, priority is given to a last memory when InitVol is Off. When"InitVol" is larger than "MaxVol", make "InitVol" and "MaxVol" the same.** **<Selection/Range> :** **Off/0 to 63** **-Off: give priority to a last memory**
MAXIMUM VOL LEVEL	**Adjust maximum volume.** **Set this max. volume, each time power is switched on.** **When "MaxVol" is smaller than "InitVol", make "MaxVol" and "InitVol" the same, if "InitVol" is not Off.** **<Range> :** **0to 63**
INITIAL CH	**Select program number.** **Set this program number, each time power is switched on.** **<Selection> :** **Off/0 to C125** **-Off: give priority to a last memory**
BUTTON LOCK	**Select local key conditions.** **Set this condition, each time power is switched on.** **<Selection> :** **Off/SETUPMENU/All** **-Off: altogether valid** **-Action: restrict ACTION-key selection** **-All: altogether invalid.**

item	Function
REMOCON LOCK	Select remote control key conditions. Set this condition, each time power is switched on. <Selection> : Off/SETUP/MENU -Off: altogether valid -Action: menu is invalid

13. Conductor Views

13.1. PF-Board

13.2. P-Board

13.3. PA-Board

13.4. TA and TB-Board

13.5. H-Board

13.6. DG-Board

13.7. D-Board

13.8. C1-Board

13.9. C2-Board

13.10. SC-Board

13.11. SU and SD-Board

13.12. SS, SS2 and SS3-Board

13.13. K and G-Board

14. Block and Schematic Diagrams

14.1. Schematic Diagram Notes

14.2. Main Block Diagram

14.3. PF and P-Board Block Diagram